Seizures in pediatrics: Challenges and strategies in urgency and emergency

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ABSTRACT

Seizures in pediatrics are presented as a medical urgency and emergency, requiring an immediate and specialized response. This condition challenges healthcare professionals to understand the specific nuances of seizures in children, from identifying triggers to implementing treatment strategies in an emergency setting.

Keywords: Seizures, Immediate Response, Seizure in Pediatrics.

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INTRODUCTION

A seizure is a sudden, temporary event that results from abnormal electrical activity in the brain. During a seizure, brain cells (neurons) can send electrical signals in a disordered manner, leading to varying symptoms. These symptoms can include involuntary movements, muscle twitches, loss of consciousness and, in some cases, changes in behavior.

Seizures in children represent neurological events marked by disordered brain electrical activity, resulting in intense physical and behavioral manifestations. During a seizure, brain cells emit abnormal electrical signals, leading to symptoms that can range from involuntary movements to loss of consciousness.

Symptoms can include jerky muscle contractions, repetitive and uncoordinated movements, staring, excessive salivation, changes in skin color, and in some cases, temporary loss of consciousness. The duration and intensity of these episodes may vary, requiring careful attention for proper evaluation.

The classification of seizures in pediatrics is crucial to guide diagnosis and treatment. Seizures in children can have a variety of origins, and understanding these factors is essential for an effective approach to diagnosis and treatment. Some of the primary causes include conditions such as epilepsy, which can have both genetic origins and acquired through brain injuries or infections. In addition, high fevers in children, known as febrile seizures, can trigger episodes, usually between six months and five years of age, requiring medical evaluation.

Brain injuries, such as head trauma, brain malformations, tumors, or other abnormalities, can also be responsible for seizures in children. Metabolic disorders, such as those related to amino acid metabolism, glycogenoses, and urea cycle disorders, as well as central nervous system infections, such as meningitis and encephalitis, are among the potential causes. Certain congenital conditions and exposure to toxic substances, such as medications, drugs, or chemicals, can also contribute to seizures in children. Assessment of triggers is vital, involving a comprehensive analysis, including a detailed medical history, careful physical examination, imaging tests such as magnetic resonance imaging (MRI) and computed tomography (CT), laboratory tests, and electroencephalogram (EEG) to record brain electrical activity.

Careful evaluation of triggers is a crucial step in identifying the specific cause of seizures in children. This broad process comprises different steps, from the detailed review of the child's medical history, including previous medical events, neurological development, and exposure to potential triggers, to the assessment of general and neurological health status through physical examinations. In addition, procedures such as magnetic resonance imaging (MRI) and computed tomography (CT) scans are often used to examine brain structure, looking for lesions or abnormalities that may contribute to seizures.

Blood tests, as part of laboratory tests, are a common practice to identify metabolic or infectious disorders that may be related to seizures in children. The electroencephalogram (EEG), which records brain electrical activity, plays a crucial role in characterizing the nature of seizures, allowing the identification of characteristic patterns associated with different types of seizures.

METHODOLOGY

The theme "Seizures in Pediatrics: Challenges and Strategies in Urgency and Emergency" stands out for the complexity and urgency associated with seizure episodes in children. The methodological approach proposed to explore this theme involves the critical reading and analysis of scientific studies obtained from renowned databases, such as PUBMED, MEDLINE and SciELO. The search period, from January to February 2024, is delimited, searching for specific Descriptors in Sciences and Health (DeCS), including SEIZURES. IMMEDIATE RESPONSE. SEIZURE IN PEDIATRICS.

The methodology will be conducted in two distinct phases. Initially, an in-depth analysis of articles that address the etiology of seizures in children will be carried out, including triggering factors, classification and clinical manifestations. This first moment aims at a comprehensive understanding of the challenges faced in the management of these situations, including the urgency of intervention during seizures. In the second phase, research will focus on specific strategies and approaches for the management of seizures in pediatric urgency and emergency settings.

The careful selection of journals specialized in pediatrics, pediatric neurology and emergency medicine will contribute to the relevance and updating of the information obtained. The critical analysis of the final 25 studies, after rigorous application of the selection criteria, will allow the interpretation of the results in the specific context of seizures in pediatrics, outlining challenges and strategies relevant to urgency and emergency. This methodology aims to contribute significantly to the in-depth and scientifically based understanding of how to effectively address seizures in critical paediatric settings.

RESULTS AND DISCUSSION

Seizures are considered an urgency and emergency in pediatrics due to several factors that highlight the critical nature of these events for children's health. The occurrence of seizures can carry significant risks, including serious complications such as injuries during the seizure and breathing difficulties, which justifies the need for immediate intervention.

In the medical approach to a pediatric urgency and emergency related to seizures, the initial protocol stands out for the need for a rapid and precise intervention aimed at stabilizing the patient

and identifying the underlying cause. This multidisciplinary process entails a series of essential steps that reflect the medical expertise applied during the critical situation.

The procedure begins with a primary evaluation, aimed at ensuring an unobstructed airway, immediate assessment of vital signs, and identification of potential complications. The safety of the patient and medical staff is emphasized, with measures taken to remove hazardous objects and ensure a safe environment during the crisis.

Administration of anticonvulsants, such as diazepam or lorazepam, is considered, especially in cases of prolonged seizures, with the choice of drug guided by clinical response. At the same time, a detailed neurological assessment is carried out, including the use of specific scales to assess the level of consciousness. Diagnostic work-up includes comprehensive laboratory tests, such as complete blood count, electrolytes, and blood gases. Imaging tests, such as brain MRI, are indicated to identify possible structural abnormalities or brain lesions. The electroencephalogram (EEG) plays a crucial role, contributing to the evaluation of brain electrical activity and the identification of patterns associated with different types of seizures.

During the approach, respiratory and cardiovascular support is ensured, with the administration of oxygen and constant monitoring of cardiac function. Transparent communication with the family plays a key role by providing information about the child's condition, treatment plan, and subsequent steps. After stabilization, post-crisis guidance is provided to parents or guardians, addressing specific care, potential medication side effects, and the importance of ongoing medical follow-up. In more complex cases, referral to a paediatric neurology specialist may be indicated for a more specialised assessment.

FINAL THOUGHTS

The study on "Seizures in Pediatrics: Challenges and Strategies in Urgency and Emergency" highlighted the urgency and complexity of these events in children. It addressed challenges such as the diversity of causes, impact on vital functions and the need for rapid responses. Strategies, such as pharmacological interventions and respiratory support, were highlighted, with emphasis on the importance of the electroencephalogram in neurological evaluation.

In perspective, it has contributed to the in-depth understanding of the topic, providing valuable insights for health professionals and researchers. In short, they reinforce the relevance of integrated and holistic approaches in the management of seizures in pediatrics, aiming not only at immediate intervention, but also at prevention and long-term health promotion in children.

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